BRUHATH BANGALORE MAHANAGARA PALIKE

Name of the Agency	:	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	:	Improvements to Road from Lakshmipura Main Road from Govt.Hospital road to Gurunath Layout, in Ward No.12, in Shettyhalli Sub-Division, BBMP, Bangalore.
Estimate Cost	:	Rs.

QUALITY CONTROL REPORTS TO

Asst. Executive Engineer,
Shettyhalli Sub Division,
Dasarahalli Zone,
BBMP, Bangalore.

CIVIL-TECH CONSULTANTS & ENGINEERS

Building & Highway Material Testing Laboratory
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QUALITY CONTROL REPORTS FOR

GRANUALAR SUB BASE (GSB)

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

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Job No.: CTCE/BBMP/W.No.12/KRIDL/GSB-1/GR/2014-15 Date : 07.07.2014

GRADATION FOR GSB-I (CLOSE GRADED)
IS: 2720 (Part 4)

Client : **Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of work : Improvements to Road from Lakshmipura Main Road from Govt.Hospital road to Gurunath Layout, in Ward No.12, in Shettyhalli Sub-Division, BBMP, Bangalore.

Reference : BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 30.06.2014

Date of Testing : 07.07.2014

Sample Source : GSB Mix Plant Bangalore. **Oven Dry Wt (gm) :** 25000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specified Limits
75.0	0	0	0.00	0	100
53.0	1151	1151	4.60	95.40	80-100
26.50	6240	7391	29.56	70.44	55-90
9.50	3885	11276	45.10	54.90	35-65
4.75	3561	14837	59.35	40.65	25-55
2.36	2000	16837	67.35	32.65	20-40
0.425	4500	21337	85.35	14.65	10-25
0.075	2565	23902	95.61	4.39	3-10
PAN	1098				
Total	25000				

Civil-Tech Consultants & Engineers Bangalore

Remarks: Satisfies MORTH Specifications as per Table 400-1, Grading I

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ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಬೃಹತ್ ಬೆಂಗಳೂರು

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Job No.: CTCE/BBMP/W.No.12/KRIDL/GSB-1/AL/2014-15 Date : 07.07.2014

ATTERBERG LIMITS TEST FOR GSB (CLOSE GRADED)
IS : 2720 (Part - 5)

Client : **Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of work : Improvements to Road from Lakshmipura Main Road from Govt.Hospital road to Gurunath Layout, in Ward No.12, in Shettyhalli Sub-Division, BBMP, Bangalore.

Reference : BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 30.06.2014

Date of Testing : 07.07.2014

As per MORTH Table : 400-11

Sl. No.	Particulars	Test Results	Standards as per Specifications
1	Liquid Limit, %	21.00	25.0% Maximum.
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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QUALITY CONTROL REPORTS FOR

WE MIX MACADAM(WMM)

CIVIL-TECH CONSULTANTS AND ENGINEERS

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NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.12/KRIDL/WMM/Gradation/2014-15 15.07.2014

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of Work : Improvements to Road from Lakshmipura Main Road from Govt.Hospital road to Gurunath Layout, in Ward No.12, in Shettyhalli Sub-Division, BBMP, Bangalore.

Reference : BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 30.06.2014

Date of Testing : 15.07.2014

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): **26000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	990	990	3.8	96.2	95-100
22.4	5485	6475	24.9	75.1	60-80
11.2	5250	11725	45.1	54.9	40-60
4.75	4990	16715	64.3	35.7	25-40
2.36	3620	20335	78.2	21.8	15-30
0.600	2210	22545	86.7	13.3	8-22
0.075	2255	24800	95.4	4.6	0-8

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Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to Road from Lakshmipura Main Road from Govt.Hospital road to Gurunath Layout, in Ward No.12, in Shettyhalli Sub-Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 30.06.2014
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	15.07.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	380	381	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	85	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	295	295	
4	Aggregate Impact value = percent fines $100^* (W_2/W_1)\%$	22.37	22.57	22.20

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.12/KRIDL/WMM/S-T/2014-15 15.07.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Work	Improvements to Road from Lakshmipura Main Road from Govt.Hospital road to Gurunath Layout, in Ward No.12, in Shettyhalli Sub-Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 30.06.2014
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	15.07.2014

Result : Flakiness Index = **12.50%**

Elongation Index = **13.58%**

Result : Combined Flakiness & Elongation index 26.08%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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QUALITY CONTROL REPORTS FOR

BITUMINOUS MACADAM

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

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Job No.: CTCE/BBMP/W.No.12/KRIDL/BM/Bitumen/2014-15 22.07.2014

BITUMEN CONTENT DETERMINATION OF BITUMINOUS MACADAM MIX

AS per IRC:SP:-1984

CLIENT	**Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.
AGENCY	**Technical Manager,** KRIDL, Bangalore.
NAME OF THE WORK	Improvements to Road from Lakshmipura Main Road from Govt.Hospital road to Gurunath Layout, in Ward No.12, in Shettyhalli Sub-Division, BBMP, Bangalore.
REFERENCE	BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 30.06.2014
SAMPLE I/D	Govt.Hospital Road Ward No.12.
DATE OF TESTING	22.07.2014

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	482	482.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	18	17.50
7. Bitumen content in %	3.60	3.50
8. Average	**3.55**	

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GRADATION DETERMINATION OF BITUMINOUS MACADAM MIX

As per IS2386 and IRC:SP:11-1984

CLIENT	**Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.
AGENCY	**Technical Manager,** KRIDL, Bangalore.
NAME OF THE WORK	Improvements to Road from Lakshmipura Main Road from Govt.Hospital road to Gurunath Layout, in Ward No.12, in Shettyhalli Sub-Division, BBMP, Bangalore.
REFERENCE	BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 30.06.2014
SAMPLE I/D	Govt.Hospital Road Ward No.12.
DATE OF TESTING	22.07.2014

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-04 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
26.5	0	0	0	100	100
19	31.25	6.48	6.48	93.52	90-100
13.2	84.56	17.54	24.03	75.97	56-88
4.75	261.5	54.25	78.28	21.72	16-36
2.36	46.32	9.61	87.89	12.11	4-19
0.3	15.65	3.25	91.14	8.86	2-10
0.075	6.39	1.33	92.46	7.54	0-8

Þ The results indicated above are based on the tests carried	Trail 2				Specified Limits as per MORTH specification table 500-04 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
26.5	0	0	0	100	100
19	35.62	7.38	7.38	92.62	90-100
13.2	80.25	16.63	24.01	75.99	56-88
4.75	264.5	54.82	78.83	21.17	16-36
2.36	46.36	9.61	88.44	11.56	4-19
0.3	18.25	3.78	92.22	7.78	2-10
0.075	7.85	1.63	93.85	6.15	0-8

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QUALITY CONTROL REPORTS FOR

BITUMINOUS CONCRETE

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Job No.: CTCE/BBMP/W.No.12/KRIDL/QB(BC)/2014-15 21.07.2014

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

CLIENT	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.
AGENCY	:	**Technical Manager,** KRIDL, Bangalore.
NAME OF THE WORK	:	Improvements to Road from Lakshmipura Main Road from Govt.Hospital road to Gurunath Layout, in Ward No.12, in Shettyhalli Sub-Division, BBMP, Bangalore.
REFERENCE	:	BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 30.06.2014
SOURCE OF LOCATION	:	Hot mix Plant, Bangalore
DATE OF TESTING	:	21.07.2014

The results of the tests conducted on the bitumen sample.

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2009)	66	60 to 70
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2009)	43	Min. 45
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 50
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2009)	296	Min. 220

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Job No.: CTCE/BBMP/W.No.12/KRIDL/BC/AIV/2014-15 22.07.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to Road from Lakshmipura Main Road from Govt.Hospital road to Gurunath Layout, in Ward No.12, in Shettyhalli Sub-Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 30.06.2014
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	22.07.2014

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	374	375	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	82	83	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	292	292	
4	Aggregate Impact value = percent fines			
	100^{*} (W_2/W_1) percent	21.93	22.13	**22.03**

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

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Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to Road from Lakshmipura Main Road from Govt.Hospital road to Gurunath Layout, in Ward No.12, in Shettyhalli Sub-Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 30.06.2014
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	22.07.2014

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	385	387	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	85	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	301	
4	Aggregate Impact value = percent fines			
	100* (W_2/W_1) percent	22.08	22.22	22.15

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

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Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to Road from Lakshmipura Main Road from Govt.Hospital road to Gurunath Layout, in Ward No.12, in Shettyhalli Sub-Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 30.06.2014
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	22.07.2014

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	379	381	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	78	79	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	302	
4	Aggregate Impact value = percent fines			
	100* (W_2/W_1) percent	20.58	20.73	**20.66**

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

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Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to Road from Lakshmipura Main Road from Govt.Hospital road to Gurunath Layout, in Ward No.12, in Shettyhalli Sub-Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 30.06.2014
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	22.07.2014

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	382	383	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	80	81	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	302	302	
4	Aggregate Impact value = percent fines			
	100* (W_2/W_1) percent	20.94	21.15	**21.05**

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

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Job No.: CTCE/BBMP/W.No.12/KRIDL/BC/Shape.T/2014-15 : 22.07.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	: **Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.
Agency	: **Technical Manager,** KRIDL, Bangalore.
Name of Work	: Improvements to Road from Lakshmipura Main Road from Govt.Hospital road to Gurunath Layout, in Ward No.12, in Shettyhalli Sub-Division, BBMP, Bangalore
Reference	: BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 30.06.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Bituminous Concrete
Date of Testing	: 22.07.2014

Result : Flakiness Index = **12.90%**

Elongation Index = **13.22%**

Result : Combined Flakiness & Elongation index **26.12%**

Comments:

→ Maximum allowable Flakiness & Elongation Index for Dense Graded Bituminous Macadam is 30%

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Reference	: BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 30.06.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Bituminous Concrete
Date of Testing	: 22.07.2014

Result : Flakiness Index = **12.25%**

Elongation Index = **13.10%**

Result : Combined Flakiness & Elongation index **25.35%**

Comments:

→ Maximum allowable Flakiness & Elongation Index for Dense Graded Bituminous Macadam is 30%

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DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	: **Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.
Agency	: **Technical Manager,** KRIDL, Bangalore.
Name of Work	: Improvements to Road from Lakshmipura Main Road from Govt.Hospital road to Gurunath Layout, in Ward No.12, in Shettyhalli Sub-Division, BBMP, Bangalore.
Reference	: BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 30.06.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Bituminous Concrete
Date of Testing	: 22.07.2014

Result : Flakiness Index = **11.60%**

Elongation Index = **13.20%**

Result : Combined Flakiness & Elongation index **24.80%**

Comments:

⇒ Maximum allowable Flakiness & Elongation Index for Dense Graded Bituminous Macadam is 30%

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Customer	: **Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.
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Reference	: BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 30.06.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Bituminous Concrete
Date of Testing	: 22.07.2014

Result : Flakiness Index = **12.45%**

Elongation Index = **13.88%**

Result : Combined Flakiness & Elongation index **26.33%**

Comments:

→ Maximum allowable Flakiness & Elongation Index for Dense Graded Bituminous Macadam is 30%

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Job No.: CTCE/BBMP/W.No.12/KRIDL/BC/Stripping/2014-15 24.07.2014

Stripping Value of Road Aggregates (Static Immersion Test)

IS: 6241

Client	**Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to Road from Lakshmipura Main Road from Govt.Hospital road to Gurunath Layout, in Ward No.12, in Shettyhalli Sub-Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ./PR/2014-15 Dated: 30.06.2014
Type of Mix	Bituminous Concrete
Date of Testing	24.07.2014

Type of binder : 60/70
Percentage of binder used : 5.00% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.00 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.2		
2	3.1	3.23	96.77
3	3.4		

Comments:

→ Minimum allowable Aggregate retained coating for Bituminous Concrete is 95%

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Job No.: CTCE/BBMP/W.No.12/KRIDL/BC/Sp_Wa/2014-15 24.07.2014

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Client	**Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to Road from Lakshmipura Main Road from Govt.Hospital road to Gurunath Layout, in Ward No.12, in Shettyhalli Sub-Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 30.06.2014
Type of Mix	Bituminous Concrete
Date of Testing	24.07.2014

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	1992	1993	1994	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1237	1238	1239	
4	Weight of saturated surface dry aggregate in air	W_3 g	2020	2022	2021	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	783	784	782	
6	Weight of oven dried aggregate	W_4 g	2001	2002	2003	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.556	2.554	2.561	2.557
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.619	2.620	2.622	2.620
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.95%	1.00%	0.90%	0.95%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%

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JobNo. CTCE/BBMP/W.No.12/KRIDL/BC/Bitumen/2014-15 24.07.2014

BITUMEN CONTENT DETERMINATION OF BITUMINOUS CONCRETE MIX

As per IRC:SP:11-1984

CLIENT	**Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.
AGENCY	**Technical Manager,** KRIDL, Bangalore.
NAME OF THE WORK	Improvements to Road from Lakshmipura Main Road from Govt.Hospital road to Gurunath Layout, in Ward No.12, in Shettyhalli Sub-Division, BBMP, Bangalore.
REFERENCE	BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 30.06.2014
SAMPLE I/D	Govt.Hospital Road Ward No.12
DATE OF TESTING	24.07.2014

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	474.5	473
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25.5	27.00
7. Bitumen content in %	5.10	5.40
8. Average	**5.25**	

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JobNo: CTCE/BBMP/W.No.12/KRIDL/BC/Bitumen/2014-15 24.07.2014

BITUMEN CONTENT AFTER GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

As Per IS 2386 and IRC:SP:11-1984

CLIENT	**Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.
AGENCY	**Technical Manager,** KRIDL, Bangalore.
NAME OF THE WORK	Improvements to Road from Lakshmipura Main Road from Govt.Hospital road to Gurunath Layout, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
REFERENCE	BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 30.06.2014
SAMPLE I/D	Govt.Hospital Road Ward No.12
DATE OF TESTING	24.07.2014

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	474.5	473	
19	0	0	0	100	100
13.2	44.21	9.32	9.32	90.68	79-100
9.5	33.29	7.02	16.33	83.67	70-88
4.75	71.2	15.01	31.34	68.66	53-71
2.36	65.32	13.77	45.10	54.90	42-58
1.18	49.61	10.46	55.56	44.44	34-48
0.6	63.3	13.34	68.90	31.10	26-38
0.3	48.25	10.17	79.07	20.93	18-28
0.15	34.59	7.29	86.36	13.64	12-20
0.075	36.37	7.66	94.02	5.98	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	37.8	7.99	7.99	92.01	79-100
9.5	45.26	9.57	17.56	82.44	70-88
4.75	73.2	15.48	33.04	66.96	53-71
2.36	64.21	13.58	46.61	53.39	42-58
1.18	72.26	15.28	61.89	38.11	34-48
0.6	43.41	9.18	71.07	28.93	26-38
0.3	36.29	7.67	78.74	21.26	18-28
0.15	39.68	8.39	87.13	12.87	12-20
0.075	33.26	7.03	94.16	5.84	4-10

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Aggregate Gradation Test

IS : 2386 Part I

Client	**Asst. Executive Engineer,** Shettyhalli Sub Division, Dasarahalli Zone, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of theWork	Improvements to Road from Lakshmipura Main Road from Govt.Hospital road to Gurunath Layout, in Ward No.12, in Shettyhalli Sub-Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 30.06.2014
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	24.07.2014

Total Weight of Sample: **5300** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	610	11.51	11.51	88.49	79 - 100	
9.5	482	9.09	20.60	79.40	70 - 88	
4.75	630	11.89	32.49	67.51	53 - 71	
2.36	525	9.91	42.40	57.60	42 - 58	
1.18	633	11.94	54.34	45.66	34 - 48	
0.600	495	9.34	63.68	36.32	26 - 38	
0.300	541	10.21	73.89	26.11	18 - 28	
0.150	432	8.15	82.04	17.96	12 - 20	
0.075	522	9.85	91.89	8.11	4 - 10	

Total Weight of Sample: **4800** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	612	12.75	12.75	87.25	79 - 100	
9.5	476	9.92	22.67	77.33	70 - 88	
4.75	638	13.29	35.96	64.04	53 - 71	
2.36	513	10.69	46.65	53.35	42 - 58	
1.18	630	13.13	59.77	40.23	34 - 48	
0.600	513	10.69	70.46	29.54	26 - 38	
0.300	406	8.46	78.92	21.08	18 - 28	
0.150	390	8.13	87.04	12.96	12 - 20	
0.075	329	6.85	93.90	6.10	4 - 10	

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